

METHODS OF FORMING ALUMINUM STRUCTURES IN
MICROELECTRONIC ARTICLES AND ARTICLES FABRICATED THEREBY

Abstract of the Disclosure

A recess is formed in a microelectronic substrate, and then a metal-containing layer is formed that conforms to an inner surface of the recess and to a surface of the substrate adjacent the recess. A carbon concentration in a portion of the metal-containing layer on the surface of the substrate adjacent the recess is decreased in
5 comparison to a portion of the metal-containing layer within the recess, e.g., using a plasma treatment that has a greater effect on the surface outside of the recess. Aluminum is then deposited on the metal-containing layer to form an aluminum layer that conforms to the inner surface of the recess and to the surface of the substrate adjacent the recess. Preferably, the carbon concentration in the portion of the metal-
10 containing layer within the recess is sufficiently great to cause aluminum to deposited at a greater rate on the portion of the metal-containing layer within the recess.